How CBO Estimates Automatic Stabilizers

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Abstract

Federal receipts and outlays regularly respond to cyclical movements in the economy. When the economy is operating below its potential, personal income and other tax bases are depressed, causing revenues to be lower than if the economy was operating at its potential. At such times, outlays for unemployment insurance benefits and other types of transfer programs are elevated. By contrast, when the economy is operating above its potential, revenues are higher and transfer payments are lower than would be the case if the economy was operating at its potential. Those "automatic stabilizers" thus tend to dampen the size of cyclical movements in the economy, by supporting or restraining private spending. (The effects of automatic stabilizers are in addition to the effects of any legislated changes in tax and spending policies.) The Congressional Budget Office estimates the size of the automatic stabilizers using actual data for past years and the agency's current-law projections for current and future years by relating movements in various components of federal revenues and outlays to measures of cyclical movements in the economy.

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Federal receipts and outlays regularly respond to cyclical movements in the economy. When the economy is operating below its potential, personal income and other tax bases are depressed, causing revenues to be lower than if the economy was operating at its potential. At such times, outlays for unemployment insurance benefits and other types of transfer programs are elevated. By contrast, when the economy is operating above its potential, revenues are higher and transfer payments are lower than would be the case if the economy was operating at its potential. Those "automatic stabilizers" thus tend to dampen the size of cyclical movements in the economy, by supporting or restraining private spending.

The Congressional Budget Office estimates the size of the automatic stabilizers using actual data for past years and the agency's current-law projections for the current and future years by relating movements in various components of federal revenues and outlays to measures of cyclical movements in the economy. Most types of revenues—mainly personal, corporate, and social insurance taxes—are sensitive to the business cycle and account for most of the value of the automatic stabilizers. A relatively small part of total outlays—those for the programs that are intended to support people's income and have a cyclical component—contribute to the value of the automatic stabilizers; those benefits include ones from unemployment insurance, Medicaid, and SNAP (the Supplemental Nutrition Assistance Program). The automatic stabilizers do not include discretionary spending because that spending (which requires legislation) is not automatic or interest payments because those outlays are not designed to provide income support. CBO's estimates of the automatic stabilizers are based on the estimated cyclical elements of those revenues and outlays. The magnitude of the automatic stabilizers is zero when the economy is operating at its potential and grows as the economy operates further away from its potential.[1]

CBO estimates that the automatic stabilizers significantly increased the federal deficit in fiscal year 2014 but will increase the deficit by smaller amounts as the economy improves over the next few years.[2] Given the degree to which the economy was operating below its potential, CBO estimates that the automatic stabilizers added $203 billion to the deficit in 2014, an amount equal to 1.1 percent of potential (maximum sustainable) gross domestic product (GDP) (see Tables 1 and 2). By comparison, CBO estimates that the automatic stabilizers added $343 billion (2.2 percent of potential GDP) to the deficit in fiscal year 2010—the year after the most recent recession.[3] According to CBO's projections, under current law the automatic stabilizers will add an amount equal to 0.2 percent of potential GDP to the deficit each year after 2017.

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[1] For a description of a methodology for estimating automatic stabilizers that is similar to CBO's, see Glenn Follette and Byron Lutz, *Fiscal Policy in the United States: Automatic Stabilizers, Discretionary Fiscal Policy Actions, and the Economy*, Finance and Economic Discussion Series Paper 2010-43 (Board of Governors of the Federal Reserve System, June 2010), www.federalreserve.gov/econresdata/feds/2010/index.htm. See also Darrel Cohen and Glenn Follette, "The Automatic Fiscal Stabilizers: Quietly Doing Their Thing," *Economic Policy Review*, Federal Reserve Bank of New York, vol. 6, no. 1 (April 2000), pp. 35–68, www.newyorkfed.org/research/epr/00v06n1/0004cohe.pdf (302 KB).

[2] The projections of the automatic stabilizers are based on the historical and forecast values presented in Congressional Budget Office, *An Update to the Budget and Economic Outlook: 2015 to 2025* (August 2015), www.cbo.gov/publication/50724. CBO will update its estimates of the automatic stabilizers this winter in its annual *Budget and Economic Outlook*.

[3] Alternative estimates for the period covering the most recent recession and slow recovery are presented in Troy Davig and Michael Redmond, "Accounting for Changes in the U.S. Budget Deficit," *Economic Review*, Federal Reserve Bank of Kansas City, no. Q IV (2014), pp. 5–27, http://tinyurl.com/pw4fgfm (PDF, 212 KB).

Table 1.
Deficit or Surplus With and Without CBO's Estimate of Automatic Stabilizers, and Related Estimates, in Billions of Dollars

	Deficit (-) or Surplus With Automatic Stabilizers	− Automatic Stabilizers	= Deficit (-) or Surplus Without Automatic Stabilizers	Revenues and Outlays Without Automatic Stabilizers		GDP Gap[a]	Unemployment Gap (Percent)[b]
				Revenues	Outlays		
1965	-1	3	-5	114	119	8	-0.7
1966	-4	10	-14	123	137	33	-1.7
1967	-9	11	-19	141	161	31	-2.0
1968	-25	10	-35	147	182	27	-2.0
1969	3	12	-9	179	188	32	-2.4
1970	-3	5	-8	192	200	9	-1.9
1971	-23	-4	-19	191	211	-12	-0.2
1972	-23	-1	-22	209	231	-3	-0.1
1973	-15	12	-27	221	248	39	-0.9
1974	-6	10	-16	256	273	25	-1.2
1975	-53	-18	-35	294	329	-61	1.2
1976	-74	-23	-50	314	365	-59	1.8
1977	-54	-13	-41	363	404	-37	1.1
1978	-59	2	-61	398	458	-5	*
1979	-41	11	-51	455	506	14	-0.4
1980	-74	-17	-57	531	588	-63	0.6
1981	-79	-28	-51	619	670	-69	1.2
1982	-128	-70	-58	669	726	-205	3.0
1983	-208	-96	-112	666	778	-242	4.1
1984	-185	-27	-158	683	841	-83	1.8
1985	-212	-7	-206	735	940	-38	1.2
1986	-221	-3	-218	767	985	-21	1.0
1987	-150	-5	-144	857	1,002	-30	0.4
1988	-155	13	-168	898	1,066	29	-0.3
1989	-153	29	-181	966	1,148	72	-0.7
1990	-221	19	-240	1,016	1,256	41	-0.5
1991	-269	-48	-221	1,097	1,319	-158	0.8
1992	-290	-67	-223	1,146	1,369	-176	1.7
1993	-255	-62	-193	1,204	1,397	-167	1.5
1994	-203	-47	-156	1,299	1,454	-130	0.9
1995	-164	-43	-121	1,393	1,513	-144	0.3
1996	-107	-52	-56	1,502	1,558	-156	0.2
1997	-22	-19	-3	1,603	1,606	-71	*
1998	69	6	63	1,721	1,658	-1	-0.5
1999	126	46	80	1,790	1,710	126	-0.7

(Continued)

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Table 1. (Continued)
Deficit or Surplus With and Without CBO's Estimate of Automatic Stabilizers, and Related Estimates, in Billions of Dollars

	Deficit (-) or Surplus With Automatic Stabilizers	− Automatic Stabilizers =	Deficit (-) or Surplus Without Automatic Stabilizers	Revenues and Outlays Without Automatic Stabilizers		GDP Gap[a]	Unemployment Gap (Percent)[b]
				Revenues	Outlays		
2000	236	85	152	1,953	1,802	235	-1.0
2001	128	32	97	1,970	1,873	40	-0.7
2002	-158	-57	-101	1,903	2,004	-191	0.7
2003	-378	-93	-284	1,862	2,146	-291	1.0
2004	-413	-50	-363	1,919	2,281	-134	0.6
2005	-318	-10	-308	2,159	2,467	-20	0.2
2006	-248	14	-262	2,396	2,658	30	-0.3
2007	-161	-1	-160	2,577	2,737	-42	-0.5
2008	-459	-59	-400	2,580	2,980	-228	0.3
2009	-1413	-292	-1121	2,336	3,457	-1018	3.5
2010	-1294	-343	-951	2,415	3,366	-971	4.6
2011	-1300	-314	-986	2,530	3,516	-912	3.9
2012	-1087	-267	-820	2,644	3,464	-800	3.0
2013	-680	-256	-424	2,971	3,395	-764	2.4
2014	-485	-203	-282	3,186	3,468	-611	1.4
2015	-426 [c]	-154	-272	3,389	3,661	-492	0.4
2016	-414	-110	-303	3,619	3,922	-341	0.1
2017	-416	-52	-364	3,679	4,042	-155	*
2018	-454	-31	-423	3,760	4,183	-100	*
2019	-596	-33	-563	3,878	4,441	-103	0.1
2020	-687	-39	-648	4,036	4,684	-108	0.2
2021	-767	-41	-726	4,198	4,923	-113	0.2
2022	-885	-43	-843	4,393	5,236	-118	0.2
2023	-895	-44	-851	4,595	5,447	-123	0.2
2024	-886	-46	-840	4,809	5,648	-128	0.2
2025	-1008	-48	-960	5,038	5,998	-133	0.2

Sources: Congressional Budget Office; Office of Management and Budget.

Notes: Automatic stabilizers are automatic changes in revenues and outlays that are attributable to cyclical movements in real (inflation-adjusted) output and unemployment.

The values in this table are based on the historical and forecast values presented in *An Update to the Budget and Economic Outlooks: 2015 to 2025* (August 2015), www.cbo.gov/publication/50724.

Shaded amounts are actual deficits or surpluses.

GDP = gross domestic product; * = between -0.05 percent and 0.05 percent.

a. The GDP gap equals the difference between actual or projected GDP and CBO's estimate of potential GDP (the maximum sustainable output of the economy).

b. The unemployment gap equals the actual or projected rate of unemployment minus CBO's estimate of the underlying long-term rate of unemployment.

c. The actual deficit in 2015 was -$439 billion.

Table 2.
Deficit or Surplus With and Without CBO's Estimate of Automatic Stabilizers, and Related Estimates, as a Percentage of Potential Gross Domestic Product

	Deficit (-) or Surplus With Automatic Stabilizers	− Automatic = Stabilizers	Deficit (-) or Surplus Without Automatic Stabilizers	Revenues and Outlays Without Automatic Stabilizers		GDP Gap[a]	Unemployment Gap (Percent)[b]
				Revenues	Outlays		
1965	-0.2	0.5	-0.7	16.3	17.0	1.2	-0.7
1966	-0.5	1.4	-1.9	16.4	18.3	4.4	-1.7
1967	-1.1	1.3	-2.4	17.5	19.9	3.9	-2.0
1968	-2.9	1.1	-4.0	16.8	20.8	3.1	-2.0
1969	0.3	1.3	-1.0	18.8	19.8	3.4	-2.4
1970	-0.3	0.5	-0.8	18.4	19.2	0.8	-1.9
1971	-2.0	-0.3	-1.7	16.9	18.6	-1.0	-0.2
1972	-1.9	-0.1	-1.8	17.1	18.9	-0.2	-0.1
1973	-1.1	0.9	-2.0	16.8	18.8	3.0	-0.9
1974	-0.4	0.7	-1.1	17.6	18.7	1.7	-1.2
1975	-3.2	-1.1	-2.1	17.6	19.7	-3.7	1.2
1976	-4.0	-1.3	-2.7	17.0	19.7	-3.2	1.8
1977	-2.6	-0.6	-2.0	17.6	19.6	-1.8	1.1
1978	-2.6	0.1	-2.7	17.4	20.1	-0.2	*
1979	-1.6	0.4	-2.0	17.8	19.8	0.5	-0.4
1980	-2.6	-0.6	-2.0	18.6	20.6	-2.2	0.6
1981	-2.5	-0.9	-1.6	19.3	20.9	-2.2	1.2
1982	-3.6	-2.0	-1.6	19.0	20.6	-5.8	3.0
1983	-5.5	-2.5	-3.0	17.6	20.6	-6.4	4.1
1984	-4.6	-0.7	-3.9	16.9	20.8	-2.1	1.8
1985	-4.9	-0.2	-4.8	17.1	21.8	-0.9	1.2
1986	-4.9	-0.1	-4.8	16.8	21.6	-0.5	1.0
1987	-3.1	-0.1	-3.0	17.8	20.8	-0.6	0.4
1988	-3.0	0.3	-3.3	17.5	20.8	0.6	-0.3
1989	-2.8	0.5	-3.3	17.6	20.9	1.3	-0.7
1990	-3.8	0.3	-4.1	17.3	21.4	0.7	-0.5
1991	-4.3	-0.8	-3.5	17.5	21.0	-2.5	0.8
1992	-4.4	-1.0	-3.4	17.3	20.7	-2.7	1.7
1993	-3.7	-0.9	-2.8	17.3	20.1	-2.4	1.5
1994	-2.8	-0.6	-2.1	17.7	19.8	-1.8	0.9
1995	-2.1	-0.6	-1.6	18.0	19.6	-1.9	0.3
1996	-1.3	-0.6	-0.7	18.5	19.2	-1.9	0.2
1997	-0.3	-0.2	*	18.7	18.8	-0.8	*
1998	0.8	0.1	0.7	19.2	18.5	*	-0.5
1999	1.3	0.5	0.9	19.1	18.2	1.3	-0.7

(Continued)

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Table 2. (Continued)
Deficit or Surplus With and Without CBO's Estimate of Automatic Stabilizers, and Related Estimates, as a Percentage of Potential Gross Domestic Product

	Deficit (-) or Surplus With Automatic Stabilizers	− Automatic Stabilizers =	Deficit (-) or Surplus Without Automatic Stabilizers	Revenues and Outlays Without Automatic Stabilizers		GDP Gap[a]	Unemployment Gap (Percent)[b]
				Revenues	Outlays		
2000	2.4	0.9	1.5	19.7	18.2	2.4	-1.0
2001	1.2	0.3	0.9	18.7	17.8	0.4	-0.7
2002	-1.4	-0.5	-0.9	17.2	18.1	-1.7	0.7
2003	-3.2	-0.8	-2.4	16.0	18.5	-2.5	1.0
2004	-3.4	-0.4	-3.0	15.7	18.7	-1.1	0.6
2005	-2.5	-0.1	-2.4	16.7	19.1	-0.2	0.2
2006	-1.8	0.1	-1.9	17.5	19.5	0.2	-0.3
2007	-1.1	*	-1.1	17.9	19.1	-0.3	-0.5
2008	-3.1	-0.4	-2.7	17.2	19.9	-1.5	0.3
2009	-9.2	-1.9	-7.3	15.1	22.4	-6.6	3.5
2010	-8.2	-2.2	-6.0	15.3	21.3	-6.2	4.6
2011	-8.0	-1.9	-6.1	15.5	21.6	-5.6	3.9
2012	-6.5	-1.6	-4.9	15.7	20.6	-4.8	3.0
2013	-3.9	-1.5	-2.4	17.1	19.6	-4.4	2.4
2014	-2.7	-1.1	-1.6	17.8	19.4	-3.4	1.4
2015	-2.3 [c]	-0.8	-1.5	18.5	20.0	-2.7	0.4
2016	-2.2	-0.6	-1.6	19.1	20.7	-1.8	0.1
2017	-2.1	-0.3	-1.9	18.7	20.6	-0.8	*
2018	-2.2	-0.2	-2.1	18.4	20.4	-0.5	*
2019	-2.8	-0.2	-2.6	18.2	20.8	-0.5	0.1
2020	-3.1	-0.2	-2.9	18.1	21.0	-0.5	0.2
2021	-3.3	-0.2	-3.1	18.1	21.2	-0.5	0.2
2022	-3.7	-0.2	-3.5	18.1	21.6	-0.5	0.2
2023	-3.5	-0.2	-3.4	18.2	21.6	-0.5	0.2
2024	-3.4	-0.2	-3.2	18.3	21.4	-0.5	0.2
2025	-3.7	-0.2	-3.5	18.4	21.8	-0.5	0.2

Sources: Congressional Budget Office; Office of Management and Budget.

Notes: Automatic stabilizers are automatic changes in revenues and outlays that are attributable to cyclical movements in real (inflation-adjusted) output and unemployment.

The values in this table are based on the historical and forecast values presented in *An Update to the Budget and Economic Outlooks: 2015 to 2025* (August 2015), www.cbo.gov/publication/50724.

Shaded amounts are actual deficits and surpluses.

GDP = gross domestic product; * = between -0.05 percent and 0.05 percent.

a. The GDP gap equals the difference between actual or projected GDP and CBO's estimate of potential GDP (the maximum sustainable output of the economy), expressed as a percentage of potential GDP.

b. The unemployment gap equals the actual or projected rate of unemployment minus CBO's estimate of the underlying long-term rate of unemployment.

c. The actual deficit in 2015 was -2.4 percent of potential GDP.

The deficit or surplus without the effect of automatic stabilizers is an estimate of what the deficit or surplus would be if the economy was at its potential and all other factors, such as inflation, were unchanged.[4] Such a budget measure has several applications. For example, some analysts use it to better discern underlying trends in government dissaving or saving (that is, trends in deficits or surpluses). Others use it to approximate whether, over the short run, the influence of the budget on aggregate demand and on the growth of real (inflation-adjusted) output is positive or negative. More generally, the measure helps analysts estimate the extent to which changes in the deficit or surplus are caused by movements of the business cycle and thus are likely to prove temporary rather than long-lasting.

CBO's estimates of the automatic stabilizers differ from its regularly published rule-of-thumb estimates that describe how revenues and outlays would differ if certain economic outcomes were different from the agency's projections.[5] The rules of thumb attempt to capture the effects of sustained changes in the rate of growth of GDP and in other economic variables, whereas the automatic stabilizers capture temporary fluctuations in economic activity.

Estimating the Revenue Components of the Automatic Stabilizers

CBO estimates the magnitude of automatic stabilizers for six categories of taxes: individual income taxes, corporate income taxes (excluding taxes paid by Federal Reserve banks), Social Security and Medicare taxes for employees, Social Security and Medicare taxes for self-employed people, taxes on production and imports, and unemployment insurance taxes. Those six categories account for the bulk of federal tax revenues.[6] Individual taxes account for most of the automatic stabilizers from revenues, followed by Social Security plus Medicare taxes for employees. The other categories are relatively small.

The automatic stabilizers from revenues were especially large from 2009 to 2013, reflecting the 2007–2009 recession and subsequent slow recovery (see Figure 1). The largest stabilizing effect from revenues, relative to potential output, occurred in 1983, when actual output was 6.4 percent below CBO's estimate of potential output as a result of the two recessions during the early 1980s. In that year, the automatic stabilizers from revenues amounted to -1.7 percent of potential GDP. (The value is negative because revenues were less than they would have been had GDP been equal to potential GDP.) On average over the historical period examined (1965 to 2014), nearly three-quarters of the automatic stabilizers from revenues stem from personal taxes, followed by payroll taxes and corporate taxes.
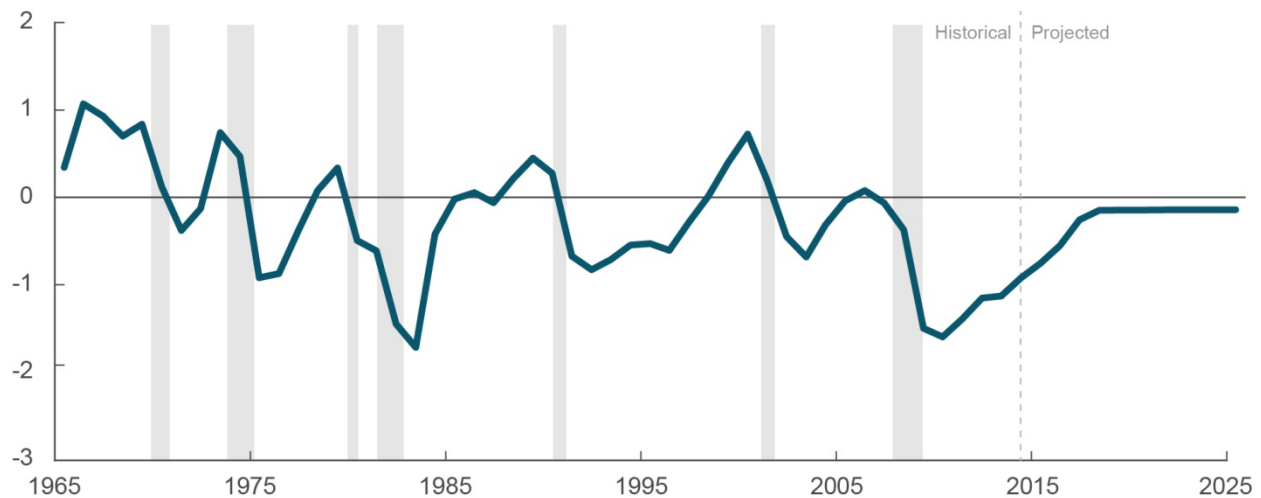
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[4] CBO's estimates of the automatic stabilizers do not identify automatic budgetary effects of inflation. Such effects were especially large in the late 1970s and early 1980s, when inflation reached double digits. For a model that identifies those effects, see Frank de Leeuw and Thomas H. Holloway, "The High-Employment Budget: Revised Estimates and Automatic Inflation Effects," *Survey of Current Business* (April 1982), pp. 21–33, http://bea.gov/scb/date_guide.asp.

[5] See Congressional Budget Office, *The Budget and Economic Outlook: 2015 to 2025* (January 2015), Appendix C, www.cbo.gov/publication/49892.

[6] Because the remaining revenue sources do not have a cyclical effect on private spending, they are not included in CBO's estimates of the automatic stabilizers. Among the remaining sources are taxes on corporate income of Federal Reserve banks and the relatively small contributions for various social insurance programs other than for Social Security, Medicare, and unemployment insurance.

Figure 1.
Contribution of Automatic Stabilizers to Federal Revenues

Percentage of Potential Gross Domestic Product

Source: Congressional Budget Office.

Notes: Automatic stabilizers are automatic changes in revenues and outlays that are attributable to cyclical movements in real (inflation-adjusted) output and unemployment.

Potential gross domestic product is CBO's estimate of the maximum sustainable output of the economy.

General Procedures

CBO's estimates of the automatic stabilizers from federal taxes are based both on quarterly time-series data for federal receipts from the national income and product accounts (NIPAs), produced by the Department of Commerce's Bureau of Economic Analysis, and on annual cross-sectional data from the Department of the Treasury's Internal Revenue Service (IRS) and the Social Security Administration (SSA). The NIPA data are used for estimating the effects of the business cycle, and the IRS and SSA data are used to estimate the year-by-year sensitivity of tax payments to changes in income, given the tax structure in place for each year.

For individual income taxes, taxes on corporate profits, and social insurance taxes, CBO computes the automatic stabilizers in five steps:

- First, using cross-sectional data for taxpayers, CBO estimates the average response (elasticity) of tax revenues, T, for each type of tax, i (individual, corporate, or social insurance), to hypothetical changes in that type of taxable income, B, for each year, t. That is, CBO estimates the average income elasticity of taxes, $R_{i,t}^{TB}$—how much those taxes would increase in percentage terms if all taxpayers' income increased by a percentage point.

- Second, using annual time-series data, CBO estimates an average elasticity, R_i^{BY}, of each IRS or SSA income measure, B_i, with respect to the corresponding NIPA income measure, Y_i.

- Third, using quarterly time-series data, CBO estimates an elasticity of each Y with respect to cyclical movements in the economy (as measured by the *GDPGAP*, the difference between CBO's estimate of potential GDP and actual GDP, scaled by potential GDP), $R_{i,t}^{YG}$, for each time

period, t. Those estimates are based on regressions relating the ratio of each Y to potential GDP to current and lagged estimates of *GDPGAP*. That is,

$$(1) \quad \frac{Y_i}{GDPK} = a_i + \sum_{j=0}^{4} b_{i,-j} GDPGAP_{-j} + \sum_{l=1}^{9} c_{i,l} TREND_l + \varepsilon_i$$

where Y_i is the NIPA income measure (personal income, wages and salaries, proprietors' income, and corporate profits), *GDPK* is potential GDP (measured in current dollars), *GDPGAP* is the GDP gap, *TREND* is a set of nine time trends (one for each complete business cycle beginning at the peak in the second quarter of 1953), ε_i is the regression residual, and the time subscript t is suppressed for clarity. Subtracting the estimated *GDPGAP* terms from both sides of (1) yields an estimate of the cyclically adjusted incomes, $YK_{i,t}$, given $GDPK_i$, as a function of the constant term, the time trends, and the estimated residual. Then, $R_{i,t}^{YG}$ is calculated as follows:

$$[(YK_{i,t}\text{-}Y_{i,t})/\,YK_{i,t}]/[(GDPK_t\text{-}GDP_t)/\,GDPK_t] \text{ for each } Y_i$$

- Fourth, CBO combines those three elasticity estimates with the dollar amounts of the various NIPA taxes, $T_{i,t}$, and CBO's estimates of the GDP gap to estimate the cyclically adjusted value of $T_{i,t}$, here termed $TK_{i,t}$. That is, the cyclically adjusted values of individual, corporate, and social insurance taxes are computed thus:

$$TK_{i,t} = T_{i,t}(1 + R_{i,t}^{TB} \cdot R_i^{BY} \cdot R_{i,t}^{YG} \cdot GDPGAP_t)$$

- Fifth, the automatic stabilizer (or cyclical revenue loss or gain) for each type of tax for each period, t, then equals $T_{i,t} - TK_{i,t}$, which is the amount of actual revenues minus what revenues would be at potential GDP. Thus, for example, if all three elasticities were equal to 1.0, a *GDPGAP* of 0.01 would provide an automatic stabilizer from revenues equal to $-0.01 \cdot T_{i,t}$.

CBO uses other procedures to estimate a cyclical relationship between taxes on production and imports and GDP and a cyclical relationship between unemployment insurance taxes and cyclical unemployment. In the case of the relatively small category of taxes on production and imports, CBO simplifies the procedure by directly estimating an overall elasticity. In the case of unemployment insurance taxes, CBO models the procedure to reflect fairly long lags between increases in tax rates meant to restore trust fund balances and cyclical increases in unemployment benefits that draw down those balances.

Individual Income Taxes

Individual income taxes, paid by individuals and households, depend on income measures from tax returns such as adjusted gross income (AGI). To calculate the automatic stabilizers from individual income taxes, CBO estimates the three elasticities and combines them with its estimate of the GDP gap and the amount of personal income taxes in the NIPAs. In fiscal year 2014, CBO estimates, the automatic stabilizer from individual income taxes amounted to a reduction of $131 billion in those taxes.

For the elasticity of tax revenues with respect to a change in taxable income, CBO uses its tax simulation model to determine the percentage increase in taxes resulting from a hypothetical 1 percentage-point increase in AGI for all income groups.[7] Historical estimates are based on available tax and income data

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[7] For explanations of CBO's methods for projecting individual income tax revenues, see Congressional Budget Office, *Description of CBO's Models and Methods for Projecting Federal Revenues* (May 2001), www.cbo.gov/publication/13038, and *Improving CBO's Methodology for Projecting Individual Income Tax Revenues*, (February 2011), www.cbo.gov/publication/22007.

Table 3.
Average Elasticities for the Revenue Components of the Automatic Stabilizers

Tax	Taxes and Tax Base	Tax Base and NIPA Income	NIPA Income and the GDP Gap[a]
Individual Income	1.61	1.13	1.22
Corporate Profits	1.00	0.75	1.55
FICA	1.00	0.88	1.18
SECA	1.00	0.81	1.54

Source: Congressional Budget Office.

Notes: Average elasticities are calculated over the 1965 to 2014 period. FICA and SECA refer to Social Security and Medicare payroll taxes paid by employees and employers and by self-employed people, respectively.

FICA = Federal Insurance Contribution Act; GDP = gross domestic product; NIPAs = national income and product accounts; SECA = Self Employment Contributions Act.

a. The GDP gap equals the difference between actual GDP and CBO's estimate of potential GDP (the maximum sustainable output of the economy), expressed as a percentage of GDP.

from the *Statistics of Income*, published by the Department of the Treasury. For the projection period (starting after the last year of available data), the estimates are based on CBO's forecasts of AGI and individual income taxes under current law.[8] The average value of the elasticity for the historical period from 1965 through 2014 is 1.61 (see Table 3).

For the elasticity of taxable income with respect to a change in income measured in the NIPAs, CBO uses a regression to estimate an elasticity of AGI to an analog based on related income measures from the NIPAs—adjusted NIPA personal income—the sum of wages and salaries, interest, dividends, rental income, and proprietors' income. Historically, the IRS-based measure of AGI has varied over time more than the NIPA measure—that is, the estimate of the elasticity is 1.13 rather than 1.0—largely because AGI includes capital gains and losses, which can fluctuate significantly, whereas the NIPA measure does not.

To estimate the cyclical responses of adjusted NIPA personal income to movements in the GDP gap, CBO uses equation (1). The average value over time of those estimates is 1.22.

Taxes on Corporate Profits

Corporate taxes, which are paid by domestic and foreign corporations operating in the United States, depend on corporate income subject to tax. To calculate the value of the automatic stabilizers deriving from corporate taxes, CBO estimates the three elasticities described above and combines them with its estimate of the GDP gap and the amount of corporate taxes recorded in the NIPAs. In fiscal 2014, the estimated automatic stabilizer from taxes on corporate profits amounted to a reduction of roughly $4 billion in those taxes.

For the elasticity of tax revenues with respect to a change in taxable income, CBO uses an estimate of 1.0 for all years. Because there is very little progressivity in the structure of corporate tax rates, a 1 percent increase in the corporate tax base does not result in much more than a 1 percent increase in taxes.

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[8] See Congressional Budget Office, *Improving CBO's Methodology for Projecting Individual Income Tax Revenues* (February 2011), www.cbo.gov/publication/22007. For the years before 1984, CBO uses elasticity estimates produced by the TAXSIM model at the National Bureau of Economic Research.

For the elasticity of taxable income with respect to a change in income measured in the NIPAs, CBO uses a regression to estimate a relationship between the IRS's measure of corporate profits subject to tax and profits as recorded in the NIPAs (excluding the earnings of the Federal Reserve System). Historically, the IRS-based measure of corporate profits subject to tax has varied over time less than the NIPA measure of adjusted corporate profits—that is, the average elasticity is 0.75 instead of 1.0—largely because the IRS's figure excludes corporations with losses, whereas the figure in the NIPAs nets those losses against the gains of profitable corporations. In recessions, profits of firms tend to decrease and losses of other firms tend to increase, so combining the two accentuates the drop in the NIPA measure of profits.

To estimate the cyclical responses of corporate profits as recorded in the NIPAs to movements in the GDP gap, CBO uses equation (1). The average value of the estimates is 1.55, indicating that profits move more than proportionally with GDP over the business cycle.

Social Security and Medicare Payroll Taxes

Social Security and Medicare payroll taxes are paid by employers, employees, and people who are self-employed. Social Security taxes are based on earnings up to a specified amount, and Medicare taxes, which are based on the same incomes, do not have a maximum taxable amount. The amount of Social Security and Medicare taxes paid by employers and employees—collectively known as FICA (Federal Insurance Contributions Act) taxes—depends on taxable earnings of wage and salary workers; Social Security and Medicare taxes paid by people who are self-employed—collectively known as SECA (Self Employed Contributions Act) taxes—depend on the taxable earnings of such workers. In fiscal 2014, the estimated automatic stabilizer from FICA and SECA taxes combined was a reduction of about $46 billion.

CBO estimates the values of the automatic stabilizers deriving from FICA taxes and SECA taxes separately. Because the tax rates for Social Security and Medicare are not progressive, CBO uses an elasticity of 1.0 for the responses of those taxes with respect to changes in the relevant taxable incomes.

CBO also uses 1.0 for the elasticities of earnings subject to Medicare taxes with respect to changes in wages and salaries and in proprietors' incomes as recorded in the NIPAs, because no cap on such earnings exists. However, CBO estimates separate elasticities of earnings subject to the Social Security components of FICA and SECA taxes to changes in their NIPA counterparts.[9]

CBO uses two methods to estimate the elasticities of earnings (as measured by the SSA) subject to Social Security taxes with respect to changes in the corresponding NIPA measures. For the projection period and for recent years (for which data from the SSA are not yet available), CBO uses a microsimulation model to estimate the elasticity of earnings subject to FICA taxes with respect to changes in wages and salaries as recorded in the NIPAs and the elasticity of earnings subject to SECA taxes with respect to changes in proprietors' incomes as recorded in the NIPAs. Those microsimulations are based on CBO's projections of data from the IRS and the Census Bureau. For the historical period, for which data from the SSA are available, CBO uses a procedure similar to that reported by Cohen and Follette, which takes into account factors such as the maximum taxable earnings amount, the fraction of covered workers and self-employed

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[9] The SSA's measure of covered wages and salaries for FICA is less than the NIPA measure of wages and salaries not only because of the cap on taxable earnings, but also because not all wages and salaries are covered by FICA, including most from the state and local sectors. For proprietors' incomes, the NIPA measure is larger than the SSA's measure, because of the cap on taxable earnings and because some proprietors' incomes need not be reported to the Social Security Administration.

workers earning less than that amount, and their average earnings.[10] The estimates of the elasticities for earnings subject to the Social Security component of FICA taxes and for earnings subject to the Social Security component of SECA taxes are both less than 1.0 because of the ceiling on income subject to those payroll taxes.[11]

To estimate the cyclical responses of wages and salaries and proprietors' incomes as recorded in the NIPAs to changes in the GDP gap, CBO uses separate regressions based on equation (1). The average values of the estimates are 1.18 and 1.54 for wages and salaries and for proprietors' incomes, respectively.

Taxes on Production and Imports

Taxes on production and imports largely consist of excise taxes and customs duties. In 2014, the estimated value of the automatic stabilizer deriving from such taxes amounted to a reduction of roughly $3 billion.

Because those taxes together accounted for only 7 percent of total federal taxes in 2014 and because there are a large number of individual taxes in those categories, CBO adopts an aggregate approach of statistically estimating elasticities of total excise taxes and of total customs duties with respect to GDP. CBO then combines them into a single elasticity using the shares of each of those taxes relative to their sum as weights. The elasticities are calculated using the equation

$$\log(T) = a + b\log(GDP) + cTREND + dDUMMY + \varepsilon$$

where T is the NIPA measure of revenues from taxes on production and imports, $TREND$ is a time trend, and $DUMMY$ is used for excise taxes and equals 1.0 in the period 1980 to 1986, when the crude oil windfall profits tax was in effect, and zero otherwise. In the case of excise taxes, the statistical estimate of the elasticity is less than 1.0 because purchases of the goods subject to excise taxes, such as gasoline, do not increase proportionately with GDP. In the case of customs duties, the elasticity is greater than 1.0 because imports respond more than proportionately to changes in GDP. The combined elasticity, which is less than 1.0 (approximately 0.6), is applied to the GDP gap to obtain an estimate of the response of taxes on production and imports to changes in the GDP gap.

Unemployment Insurance Taxes

Unemployment insurance taxes mostly fund state benefit payments and are paid by employers to states on the basis of covered wages up to a specified maximum for each worker.[12] States deposit those payments into trust funds held by the federal government. During periods of high unemployment, the trust fund balances generally decline because payments of unemployment insurance benefits rise relative to the relevant tax collections. When the trust funds are exhausted, states can temporarily borrow from the federal government to continue paying benefits. However, states are required to repay those advances

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[10] See Darrel Cohen and Glenn Follette, "The Automatic Fiscal Stabilizers: Quietly Doing Their Thing," *Economic Policy Review*, Federal Reserve Bank of New York, vol. 6, no. 1 (April 2000), pp. 48–50, www.newyorkfed.org/research/epr/00v06n1/0004cohe.pdf (302 KB).

[11] The overall elasticity estimates for earnings subject to FICA taxes and those subject to SECA taxes are the weighted averages of the elasticity estimates for Social Security and Medicare.

[12] Additional taxes for unemployment insurance that are collected directly by the federal government under the Federal Unemployment Tax Act are primarily used to cover the administrative costs of the state programs. Relatively small amounts of taxes also are collected to fund unemployment insurance for railroad workers and federal employees.

from the federal government and replenish their trust funds. To do so, states can temporarily increase unemployment insurance taxes paid by employers, either by raising the statutory tax rates or by expanding the covered tax base. During that period of temporarily elevated taxes, the effective tax rate—the ratio of total collections to total covered earnings—rises relative to the effective rate observed in normal times. In 2014, those tax rates were temporarily high, causing the estimate of the automatic stabilizer to be positive even though the tax base was smaller than what it would have been if economic output was at its potential. Specifically, for 2014, the estimated automatic stabilizer from unemployment insurance taxes was an increase of $19 billion in those taxes, reflecting the fact that a number of states still had elevated effective tax rates for unemployment insurance.

Because of the link between the effective tax rate and lagged benefit payments, CBO does not estimate an elasticity of unemployment insurance taxes to cyclical movements in covered wages. Instead, CBO cyclically adjusts the effective tax rate for unemployment insurance taxes and applies that rate to a cyclically adjusted measure of wages to obtain an estimate of the automatic stabilizer from unemployment insurance taxes. That adjustment is performed in three steps:

- First, CBO estimates the relationship between changes in the effective tax rate (unemployment insurance taxes as a share of covered wages and salaries) and changes in lagged spending for benefits (measured relative to covered wages and salaries) using the equation

$$(2) \quad \Delta\left(\frac{T}{W}\right) = a + \sum_{j=1}^{4} b_j \Delta\left(\frac{UIB}{W}\right)_{-j} + c\Delta WageCap + \varepsilon$$

  where T is unemployment insurance tax payments, W is covered wages, UIB is unemployment insurance benefit payments, and $WageCap$ is the wage base specified by the Federal Unemployment Tax Act as amended.

- Second, as part of its calculation of the automatic stabilizers from outlays (see below), CBO estimates the response of spending for unemployment insurance benefits to a cyclical measure of unemployment—the difference between the rate of unemployment and CBO's estimate of the underlying long-term rate of unemployment.[13]

- Third, CBO uses its estimates of the cyclical movements in unemployment insurance benefits to calculate the cyclical adjustment to the effective tax rate using equation (2). That is, the estimates of b_j from (2) are applied to the cyclical component of benefit payments obtained from the second step.[14]
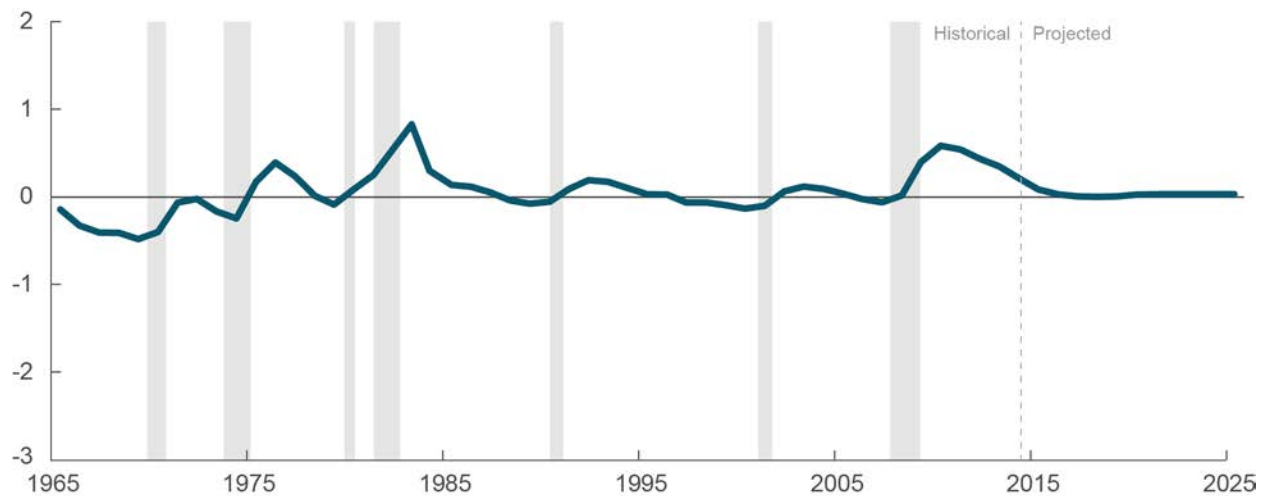
CBO's estimate of the automatic stabilizer from unemployment insurance taxes equals total unemployment insurance taxes minus the product of the cyclically adjusted effective tax rate times cyclically adjusted covered wages and salaries (as estimated for calculating the elasticity of income as recorded in the NIPAs with respect to a change in the GDP gap for FICA taxes).

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[13] The underlying long-term rate of unemployment is CBO's estimate of the rate that would occur when output is at its potential and includes the effects of the stigma and loss of skills workers may experience during long periods of unemployment. CBO also estimates a related measure, the natural rate of unemployment, which is the underlying long-term rate plus the effects of two temporary factors: extended unemployment insurance benefits and mismatches between job requirements and the qualifications of those seeking employment.

[14] Because the cyclically adjusted effective tax rate is lower than the unadjusted tax rate in periods when states are rebuilding their trust fund balances, the cyclically adjusted amount of unemployment insurance taxes can be less than the unadjusted level.

Figure 2.
Contribution of Automatic Stabilizers to Federal Outlays

Percentage of Potential Gross Domestic Product

Source: Congressional Budget Office.

Notes: Automatic stabilizers are automatic changes in revenues and outlays that are attributable to cyclical movements in real (inflation-adjusted) output and unemployment.

Potential gross domestic product is CBO's estimate of the maximum sustainable output of the economy.

Estimating the Outlay Components of the Automatic Stabilizers

By contrast with revenues, most federal spending is not included in the automatic stabilizers because it requires legislative action, is not designed to support people's income in economic recessions, or does not have a significant cyclical component. As a result, CBO does not include discretionary spending or interest payments in its calculations of the automatic stabilizers, which together account for more than a third of federal spending as recorded in the NIPAs. The remaining portion of spending consists almost entirely of transfer payments, including grants to states and local governments, but only about a fifth of that spending is included in the automatic stabilizers.

As in the case for revenues, the automatic stabilizers deriving from outlays were especially large from 2009 to 2012, reflecting the 2007–2009 recession and subsequent slow recovery; in 2011, the automatic stabilizer from outlays reached 0.5 percent of potential GDP (see Figure 2). By comparison, the largest automatic stabilizer from outlays was 0.8 percent of potential GDP in fiscal year 1983, when the unemployment rate gap was a very large 4.1 percentage points, the result of the two recessions during the early 1980s. On average, about half of the automatic stabilizers from outlays stems from unemployment insurance benefits; the rest is split roughly between Medicaid and SNAP benefits. In any particular year, however, those proportions can differ from the averages.

General Procedures

CBO estimates automatic stabilizers for three types of outlays: regular unemployment insurance benefits, Medicaid benefits, and SNAP benefits. CBO estimates that other categories of federal transfers are not significantly cyclical. In general, CBO estimates the relationship of each of those three types of outlays to

the gap between the actual (or projected) rate of unemployment and CBO's estimate of the underlying long-term rate of unemployment.[15] The regressions take the general form

$$(3) \quad \Delta\left(\frac{X_i}{GDPK}\right) = a_i + \sum_{j=0}^{n} b_{i,j}\Delta UGAP_{-j} + \varepsilon_i$$

where *X* is the amount of spending for each type of transfer payment, *i* (benefits from unemployment insurance, Medicaid, or SNAP), *GDPK* is potential GDP, *UGAP* is the difference between the unemployment rate and CBO's estimate of the underlying long-term rate of unemployment, the lag length *n* varies by transfer payment, and ε is the regression residual.[16] The automatic stabilizer is estimated as the difference between X_i and the predicted values of X_i from equation (3)—including the estimated residual—when all *UGAP* terms are set to zero.

Unemployment Insurance Benefits

The unemployment insurance program is a federal-state program that temporarily pays benefits to qualified people who are unemployed but looking for work.[17] In the aggregate, the amount of benefit payments depends on the total number of recipients and on the average amount of weekly benefits. Those benefits have a cyclical component because more people claim benefits when unemployment is high.

In equation (3), CBO uses unemployment insurance benefits and the lagged effects of changes in *UGAP* in the current calendar quarter and the preceding three to account for the 26 weeks of maximum eligibility plus additional time for extensions in some states.[18] CBO's estimate of the automatic stabilizer from unemployment insurance benefits equals the actual benefit payments minus the amount that would be paid if all of the *UGAP* terms were zero. In fiscal year 2014, when the unemployment rate gap was 1.4 percentage points, the automatic stabilizer from unemployment insurance benefits amounted to $15 billion of additional transfers.

Medicaid Benefits

Medicaid is a federal-state program that funds medical care for certain low-income, elderly, and disabled people. Medicaid spending varies inversely with the business cycle. It rises during recessions because more people meet the income qualifications when unemployment rises and more people work part time rather than full time. CBO uses the unemployment rate gap as a proxy for all such effects.

In equation (3), CBO uses federal Medicaid payments and the current value and two lagged values of the change in *UGAP* with a linear polynomial distributed lag structure. (The length of the lagged relationship was determined in large part on the basis of the Schwartz Information Criterion.) The automatic stabilizer from Medicaid benefits is set equal to the total amount of federal payments minus the amount that would be paid if all of the *UGAP* terms were zero. In 2014, the automatic stabilizer from Medicaid amounted to $8 billion of additional benefit payments.

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[15] CBO uses the unemployment rate gap, rather than the GDP gap, for its outlay estimates because the unemployment rate gap is more closely related to the determination of those outlays, particularly in the case of unemployment insurance.

[16] Because of the lags in *UGAP*, an automatic stabilizer can arise even if the current unemployment rate gap is zero.

[17] Unemployment insurance payments generally cover the first 26 weeks of unemployment (although the duration is less in some states). During periods of high unemployment, and depending on state law, a state may be qualified to provide up to an additional 13 weeks of *extended* benefits. During periods of prolonged unemployment, policymakers may enact a program of *emergency* benefits to further extend the number of weeks of benefits a person could receive. Such programs are usually financed entirely by the federal government. Because those special programs require legislation, they do not contribute to the automatic stabilizers estimated by CBO.

[18] CBO also factors in an observed decline in the cyclical behavior of unemployment insurance benefits that occurred after 1983.

SNAP Benefits

SNAP is a federal program that provides benefits to low-income households to help them purchase food. As in the case of unemployment insurance and Medicaid, SNAP benefits have a cyclical component because more people qualify for benefits when the economy weakens.

Because of the enactment of welfare reform in 1996, CBO applies equation (3) differently for the periods before and after the reform. For the period after 1996, CBO uses the current value and 12 lagged values of changes in *UGAP* with a quadratic polynomial distributed lag structure; before 1997, CBO uses the current and 3 lagged values. (The length of the lagged relationship was determined in large part on the basis of the Schwartz Information Criterion.) CBO calculates the automatic stabilizer from SNAP as the difference between total SNAP payments and the estimated amount that would be paid if all of the unemployment rate gaps were zero. In 2014, the automatic stabilizer from SNAP amounted to $15 billion of additional benefit payments.

Other Categories of Federal Transfers

CBO estimates that other categories of federal transfers—namely, Social Security, Medicare, Supplemental Security Income, refundable tax credits (mainly the earned income and the child tax credits), and veterans' benefits—do not contribute to the automatic stabilizers because they do not appear to be cyclical, according to standard regression tests using all available data. Spending for some of the programs is driven by demographic factors, such as age, which are not cyclical; for other programs, the business cycle may have both positive and negative effects that essentially cancel each other out.

For Social Security, the regression does not suggest a statistically significant role for the cyclical component of the unemployment rate. Thus, it appears that beneficiaries do not tend to use the program as temporary support for losses of income brought about by a downturn in the business cycle.[19] For that reason, the program does not behave as an automatic stabilizer.

Similarly, for Medicare, Supplemental Security Income, the refundable tax credits, and veterans' benefits, the regressions do not suggest a statistically significant role for the cyclical component of the unemployment rate. Various factors could explain why:
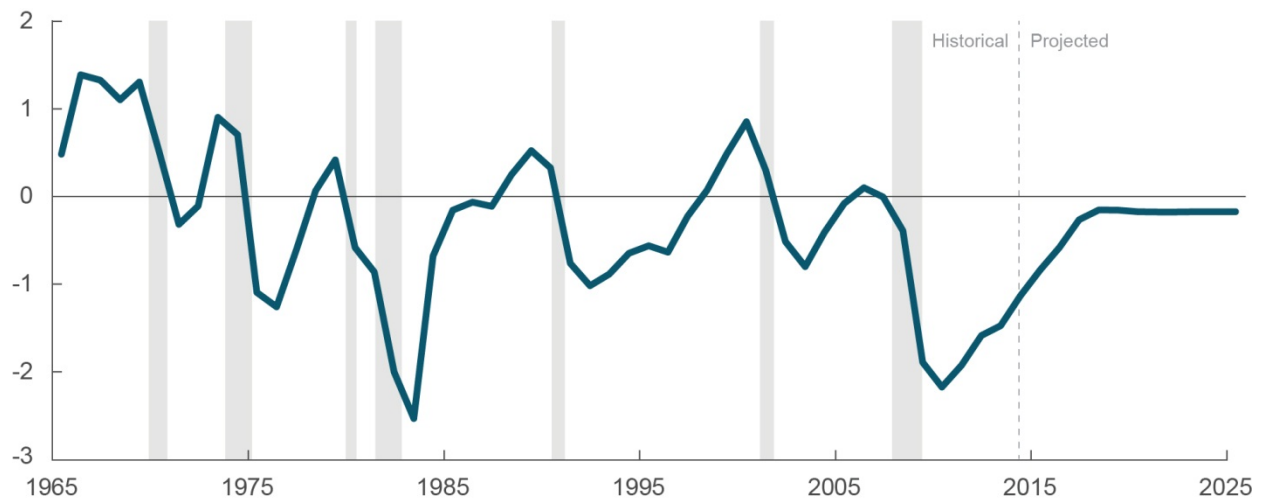
- In the case of Medicare, eligibility mainly is determined by age rather than by employment or income and thus is not sensitive to the business cycle.[20]

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[19] The NIPAs report Social Security benefit payments in consolidated form, without separating those from the Old-Age and Survivors Insurance program and those from the Disability Insurance program.

[20] Some analysts have concluded that health care providers give more care to Medicare patients during recessions when other demand for care is lower; see Melissa Powell McInerney and Jennifer M. Mellor, "State Unemployment in Recessions During 1991–2009 Was Linked to Faster Growth in Medicare Spending," *Health Affairs*, vol. 31, no. 11 (November 2012), pp. 2464–2473, http://dx.doi.org/10.1377/hlthaff.2012.0005. Nationally, CBO finds that Medicare spending was significantly related to the cyclical component of the unemployment rate only during the 2008–2015 period. Because that short time period was dominated by unusual economic developments—a severe recession and slow recovery—CBO has not included Medicare as an automatic stabilizer.

Figure 3.
Contribution of Automatic Stabilizers to Budget Deficits and Surpluses

Percentage of Potential Gross Domestic Product

Source: Congressional Budget Office.

Notes: Automatic stabilizers are automatic changes in revenues and outlays that are attributable to cyclical movements in real (inflation-adjusted) output and unemployment.

Potential gross domestic product is CBO's estimate of the maximum sustainable output of the economy.

- In the case of Supplemental Security Income, eligibility is restricted to low-income people who are at least 65 years old or blind or disabled. Any potentially cyclical movements that may be attributable to the income criterion are too small to detect in aggregate data on the program. Benefit payments from the program to disabled people may not be cyclical because the people who qualify on that basis in cyclical downturns may not change their status when economic times improve.

- For the earned income tax credit, the largest refundable credit, refunds increase with employment as more individuals qualify, but that effect is offset by gains in average earnings, because benefits are phased out as income increases.[21]

- For veterans' benefits, the largest component—disability compensation—does not require unemployment or low income for people to qualify and consequently may not be noticeably sensitive to changes in the business cycle.

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[21] The NIPAs do not show the various components of the refundable tax credits. According to federal budget data, though, the second largest refundable credit is the child tax credit, which rises both with the number of children claimed and with the amount of earnings above a specified threshold. Cyclical declines in income tend to reduce, rather than increase, the amount of refundable child tax credits by lowering the amount of earnings above the threshold.

A Historical Perspective of the Automatic Stabilizers

On average over the past five decades, GDP was 1.1 percent less than potential GDP and the automatic stabilizers were roughly -0.3 percent of potential GDP, CBO estimates, indicating that the automatic stabilizers were increasing the federal deficit and providing some support to the economy (see Figure 3). In the 34 fiscal years of economic slack since 1965, when GDP was 2.4 percent less than potential GDP on average, the automatic stabilizers increased the deficit by an average of 0.8 percent of potential GDP. By comparison, in the 16 fiscal years of economic boom, when GDP averaged 1.8 percent more than potential GDP, the automatic stabilizers reduced the deficit by an average of 0.7 percent of potential GDP.

Revenues have accounted for about three-quarters, on average, of the effect of the automatic stabilizers on the budget over the past 50 years. That fraction has varied over time, reflecting changes in tax laws and in the relative shares of GDP for different sources of income, changes in the characteristics of transfer programs, and variations in the size of the GDP gap relative to the size of the unemployment rate gap.[22]

The two largest additions to the budget deficit (as a percentage of potential GDP) from the automatic stabilizers occurred in the early 1980s and in recent years, when the GDP was far below its potential and the unemployment rate was significantly above the underlying long-term rate of unemployment. The largest addition to the federal deficit from the automatic stabilizers in a single year was 2.5 percent of potential GDP in 1983, followed by 2.2 percent in 2010. In those two years, the automatic stabilizers accounted for 46 percent and 26 percent, respectively, of the total deficit. By contrast, the largest subtractions from the budget deficit were in the late 1960s, when the economy was operating above its potential and the unemployment rate was below the underlying long-term rate. The automatic stabilizers subtracted the most (1.4 percent of potential GDP) from the budget deficit in 1966, followed closely by the effect in 1967 (1.3 percent of potential GDP).

The relationship between the automatic stabilizers (measured relative to potential GDP) and the size of the GDP gap has changed very little over time. For the past 50 years as a whole, the automatic stabilizers averaged 0.3 percent of potential GDP for each percentage point in the gap between GDP and potential GDP. In the first and second decades (1965 to 1974 and 1975 to 1984), the automatic stabilizers averaged 0.4 percent and 0.3 percent of potential GDP, respectively, for each percentage point of the GDP gap. Over the next three decades (1985 to 2014), those responses were 0.3 percent, 0.2 percent, and 0.3 percent for each percentage point of the GDP gap.
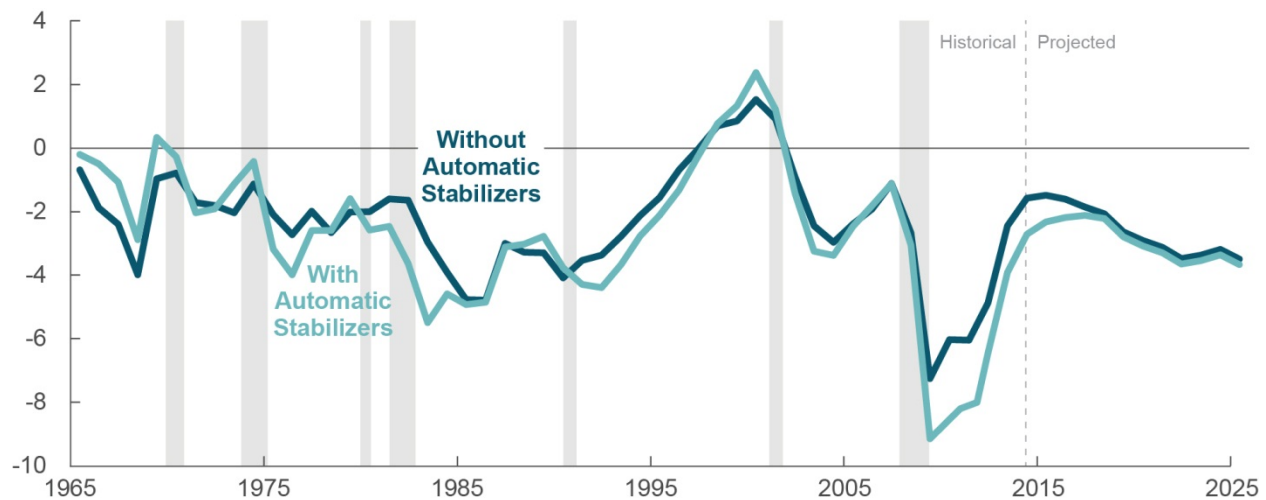
The Cyclical Appearance of the Deficit Without the Automatic Stabilizers

The budget deficit or surplus with the effects of the automatic stabilizers filtered out—a measure also known as the cyclically adjusted or structural deficit—still appears cyclical (see Figure 4). Most important, that behavior derives from the fact that the deficit without automatic stabilizers still includes the effects of legislation, in particular, measures that were adopted to counteract recessions.

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[22] A well-known relationship in economics, known as Okun's Law, currently indicates that a 1 percentage-point gap between the actual unemployment rate and the natural rate of unemployment corresponds with a 2 percentage-point gap between actual and potential GDP. That relationship, however, does not hold period by period.

Figure 4.
Budget Deficits and Surpluses With and Without Automatic Stabilizers

Percentage of Potential Gross Domestic Product

Source: Congressional Budget Office.

Notes: Automatic stabilizers are automatic changes in revenues and outlays that are attributable to cyclical movements in real (inflation-adjusted) output and unemployment.

Potential gross domestic product is CBO's estimate of the maximum sustainable output of the economy.

The most recent example of countercyclical fiscal policy is the set of measures taken to counteract the recession that began in December 2007, including the American Recovery and Reinvestment Act of 2009. According to CBO's estimates, the budgetary effect in fiscal year 2010 of all tax and spending legislation enacted after January 2008 totaled $691 billion. That amount was twice as large as the $343 billion in automatic stabilizers in that year and accounted for 72 percent of the $951 billion deficit without automatic stabilizers.

In addition, CBO's methods for estimating the automatic stabilizers may not remove all of the effects of the business cycle. For example, the procedures may only partly remove the effects of certain factors (such as large fluctuations in the stock market) that have not had a sufficiently regular relationship to business cycles to be viewed as mostly cyclical. Although other procedures for estimating the cyclical components of revenues and outlays might result in estimates of the deficit without automatic stabilizers that appear less cyclical, the approach used by CBO is appealing because it consistently ties the agency's estimates of the automatic stabilizers to its historical estimates and projections of specific measures of the business cycle.[23] Nevertheless, CBO continues to explore ways to improve its estimates of the automatic stabilizers.

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[23] For example, the use of Kalman filters to extract the cyclical component from federal revenues and outlays might produce a cyclically adjusted measure of the federal deficit that appears less cyclical than CBO's estimate. However, such a statistical procedure generally focuses on the movements in revenues and outlays without tying those movements to economic variables such as the GDP gap and the unemployment rate gap.

Using Changes in the Deficit Without Automatic Stabilizers as a Measure of Fiscal Policy

The change from one year to another in the deficit without automatic stabilizers (relative to potential GDP) is sometimes used to roughly gauge the stance of fiscal policy and its impact on the short-term growth of GDP. Increases in the deficit without automatic stabilizers may stimulate the economy in the short term, and decreases may restrain the economy.[24] However, the magnitude of the change in the deficit without automatic stabilizers is only roughly related to the degree of stimulus or restraint because that measure does not explicitly account for the economic impact of the particular policies that created the change in that deficit. Moreover, if CBO's estimates of the automatic stabilizers do not fully capture all the effects of the business cycle on revenues and outlays, the deficit without automatic stabilizers may not accurately gauge the stance of fiscal policy.

According to movements in the federal deficit without automatic stabilizers, fiscal policy has provided a short-run stimulus in 9 of the 14 fiscal years since 1965 when the economy was in recession (as defined by the National Bureau of Economic Research) for at least one month of the fiscal year—namely, in 1971, 1975, 1982, 1983, 1990, 2001, 2002, 2008, and 2009. Most of the other fiscal years of recession—1970, 1974, and 1981—were at the beginning of recessions spanning more than one fiscal year, suggesting a lagged response of fiscal stimulus. The other two years of recession without some fiscal stimulus—1980 and 1991—involved the shortest periods of recession (seven months and nine months, respectively).

In all but one fiscal year—1975—of the nine years when the budget deficit without automatic stabilizers rose during a year of recession, revenues (with the effects of automatic stabilizers removed) declined relative to potential GDP, and in five of those years—1971, 1982, 1983, 2001, and 2002—the decline in revenues accounted for most of the fiscal stimulus. Those doses of fiscal stimulus reflected a number of major tax reductions, including the Revenue Act of 1971; the Economic Recovery Tax Act of 1981 (which was phased in over several years); the Economic Growth and Tax Relief Reconciliation Act of 2001; and the Job Creation and Worker Assistance Act of 2002.[25] Although the tax reductions in the Emergency Economic Stabilization Act of 2008 and the American Recovery and Reinvestment Act of 2009 contributed to fiscal stimulus in those years, most of the increases in the budget deficit without automatic stabilizers were due to increases in federal spending apart from automatic stabilizers.

According to movements in the federal deficit without automatic stabilizers, fiscal policy has provided a short-run restraint in 6 of the 12 fiscal years when the economy was operating above its potential level (and did not register at least one month of recession) —1965, 1969, 1979, 1999, 2000, 2006.[26] The other six years—1966, 1967, 1968, 1973, 1988, and 1989—included three that were part of the Vietnam War buildup of the late 1960s and a year (1988) when GDP was only marginally above its potential level. In four of the six years when there was fiscal restraint while the economy was above potential, revenues without the effects of automatic stabilizers rose relative to potential GDP; 1965 and 1999 were the exceptions. Spending without automatic stabilizers fell as a share of potential GDP in all but one—2006—of the six years.

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[24] Economic analysis indicates that, on average, the economic effect of $100 billion exogenous increase in the deficit directly due to the impact of a legislated change in discretionary fiscal policy is less than that of a $100 billion endogenous increase in the deficit resulting from the automatic stabilizers. Moreover, the cushioning effects of the automatic stabilizers tend to reduce the effect (the multiplier) of legislated changes in taxes and spending. See Glenn Follette and Byron Lutz, *Fiscal Policy in the United States: Automatic Stabilizers, Discretionary Fiscal Policy Actions, and the Economy*, Finance and Economic Discussion Series Paper 2010-43 (Board of Governors of the Federal Reserve System, June 2010), www.federalreserve.gov/econresdata/feds/2010/index.htm.

[25] Despite the Tax Reduction Act of 1975, cyclically adjusted taxes rose in fiscal 1975.

[26] Although the economy was above its potential level in fiscal years 1970, 1974, 1990, and 2001, those fiscal years contained at least one month of recession.